WHAT IS CLAIMED:

1.   A method for diagnosing cancer in a subject, said method comprising:

obtaining a biological sample from a subject being tested;

measuring SPAN-Xb expression level in the biological sample; and

comparing the level of SPAN-Xb expression in the biological sample to the level of SPAN-Xb expression in a control sample from a subject who does not have cancer, wherein a greater level of SPAN-Xb expression in the biological sample compared to the level of SPAN-Xb expression in the control sample is indicative of the subject being tested having cancer.

2.   The method according to claim 1, wherein said measuring SPAN-Xb expression level comprises measuring the level of SPAN-Xb mRNA.

3.   The method according to claim 1, wherein said measuring SPAN-Xb expression level comprises measuring the level of SPAN-Xb protein.

4.   The method according to claim 3, wherein the level of SPAN-Xb protein is measured using an antibody recognizing the SPAN-Xb protein.

5.   The method according to claim 1, wherein said cancer is selected from the group consisting of lung cancer, colon cancer, breast cancer, ovarian cancer, lymphoma, Hodgkin's disease, acute myeloid leukemia, chronic myeloid leukemia, acute lymphoid leukemia, chronic lymphoid leukemia, myeloma, and melanoma.

6.   The method according to claim 1, wherein the subject is human.

7.   A method for monitoring progression or regression of cancer in a subject, said method comprising:

obtaining a biological sample from a subject;

measuring SPAN-Xb expression level in the biological sample; and

comparing the level of SPAN-Xb expression in the biological sample to the level of SPAN-Xb expression in a control sample previously obtained from the subject, wherein an increase or decrease in the level of SPAN-Xb expression in the biological sample compared to the level of SPAN-Xb expression in the control sample is indicative of progression or regression of the cancer, respectively.

8.   The method according to claim 7, wherein said measuring SPAN-Xb expression level comprises measuring the level of SPAN-Xb mRNA.

9.   The method according to claim 7, wherein said measuring SPAN-Xb expression level comprises measuring the level of SPAN-Xb protein.

10.   The method according to claim 9, wherein the level of SPAN-Xb protein is measured using an antibody recognizing the SPAN-Xb protein.

11.   The method according to claim 7, wherein said cancer is selected from the group consisting of lung cancer, colon cancer, breast cancer, ovarian cancer, lymphoma, Hodgkin's disease, acute myeloid leukemia, chronic myeloid leukemia, acute lymphoid leukemia, chronic lymphoid leukemia, myeloma, and melanoma.

12.   The method according to claim 7, wherein the subject is human.

13.   A method of treating a subject with cancer comprising:

administering to the subject a therapeutically effective amount of an agent capable of eliciting an immunological response against SPAN-Xb protein or specifically recognizing a SPAN-Xb protein, under conditions effective to treat a cancer characterized by cells expressing SPAN-Xb.

14.   The method according to claim 13, wherein said agent comprises a recombinant SPAN-Xb protein.

15.   The method according to claim 13, wherein said agent comprises a nucleic acid molecule encoding SPAN-Xb.

16.   The method according to claim 13, wherein said agent comprises a cytotoxic T-cell line which specifically recognizes a SPAN-Xb protein.

17.   The method according to claim 13, wherein said cancer is selected from the group consisting of lung cancer, colon cancer, breast cancer, ovarian cancer, lymphoma, Hodgkin's disease, acute myeloid leukemia, chronic myeloid leukemia, acute lymphoid leukemia, chronic lymphoid leukemia, myeloma, and melanoma.

18.   The method according to claim 13, wherein the subject is human.